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1/14



SEQUENCE LISTING

<110> Lyon, Jeffrey A.
 Angov, Evelina
 Cohen, Joe D.
 Voss, Gerald
 <120> Recombinant *P. falciparum* Merozoite Protein-1₄₂ Vaccine
 <130> 003/238/SAP
 <140> US 10/057,532
 <141> 2002-01-25
 <150> US 60/264,535, US 60/347,564
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 Pro Ile Leu Asp Glu Ile Ala Asp Glu Tyr
 45 50
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	185	190							
Val	Ile	Tyr	Leu	Lys	Pro	Leu	Ala	Gly	Val
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Lys Phe Leu Pro	Phe Leu Thr Asn Ile	Glu
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Thr Leu Tyr Asn	Asn Leu Val Asn Lys	Ile
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	365	370
Ile Asn Asp Cys	Asn Val Glu Lys Asp	Glu
	375	380
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Phe Lys Asn Pro	Tyr Asp Phe Glu Ala	Ile
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Lys Lys Leu Ile	Asn Asp Asp Thr Lys	Lys
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Asp Met Leu Gly	Lys Leu Leu Ser Thr	Gly
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Leu Val Gln Asn	Phe Pro Asn Thr Ile	Ile
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Ser Lys Leu Ile	Glu Gly Lys Phe Gln Asp	
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<212> PRT

<213> Artificial sequence

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Ile	Glu	Gly	Arg	Gly	Thr	Met	Ala	Ile	Ser
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Val	Thr	Met	Asp	Asn	Ile	Leu	Ser	Gly	Phe
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Glu	Asn	Glu	Tyr	Asp	Val	Ile	Tyr	Leu	Lys
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Pro	Leu	Ala	Gly	Val	Tyr	Arg	Ser	Leu	Lys
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Arg	Leu	Lys	Lys	Arg	Lys	Tyr	Phe	Leu	Asp
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Val	Leu	Glu	Ser	Asp	Leu	Met	Gln	Phe	Lys
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Lys	Asn	Thr	Leu	Leu	Lys	Ser	Tyr	Lys	Tyr
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Phe	Ala	Gln	Glu	Gly	Ile	Ser	Tyr	Tyr	Glu
				185					180
Lys	Val	Leu	Ala	Lys	Tyr	Lys	Asp	Asp	Leu
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Glu	Ser	Ile	Lys	Lys	Val	Ile	Lys	Glu	
				205					200
Lys	Glu	Lys	Phe	Pro	Ser	Ser	Pro	Pro	Thr
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Thr	Pro	Pro	Ser	Pro	Ala	Lys	Thr	Asp	Glu
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Gln	Lys	Lys	Glu	Ser	Lys	Phe	Leu	Pro	Phe
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245 240
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255 250
Asn Leu Lys Ala Lys Ile Asn Asp Cys Asn
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Val Glu Lys Asp Glu Ala His Val Lys Ile
275 270
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285 280
Asp Lys Ile Asp Leu Phe Lys Asn Pro Tyr
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Asp Phe Glu Ala Ile Lys Lys Leu Ile Asn
305 300
Asp Asp Thr Lys Lys Asp Met Leu Gly Lys
315 310
Leu Leu Ser Thr Gly Leu Val Gln Asn Phe
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Pro Asn Thr Ile Ile Ser Lys Leu Ile Glu
335 330
Gly Lys Phe Gln Asp Met Leu Asn Ile Ser
345 340
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355 350
Glu Asn Ser Gly Cys Phe Arg His Leu Asp
365 360
Glu Arg Glu Glu Cys Lys Cys Leu Leu Asn
375 370
Tyr Lys Gln Glu Gly Asp Lys Cys Val Glu
385 380
Asn Pro Asn Pro Thr Cys Asn Glu Asn Asn
395 390
Gly Gly Cys Asp Ala Asp Ala Thr Cys Thr
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Ser

<210> 3

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<212> PRT

<213> Artificial sequence

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Ile	Ser	Val	Thr	Met	Asp	Asn	Ile	Leu	Ser	
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Gly	Phe	Glu	Asn	Glu	Tyr	Asp	Val	Ile	Tyr	
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Leu	Lys	Pro	Leu	Ala	Gly	Val	Tyr	Arg	Ser	
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Leu	Lys	Lys	Gln	Ile	Glu	Lys	Asn	Ile	Phe	
			55						60	
Thr	Phe	Asn	Leu	Asn	Leu	Asn	Asp	Ile	Leu	
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Asn	Ser	Arg	Leu	Lys	Lys	Arg	Lys	Tyr	Phe	
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Leu	Asp	Val	Leu	Glu	Ser	Asp	Leu	Met	Gln	
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Phe	Lys	His	Ile	Ser	Ser	Asn	Glu	Tyr	Ile	
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Ile	Glu	Asp	Ser	Phe	Lys	Leu	Leu	Asn	Ser	
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Glu	Gln	Lys	Asn	Thr	Leu	Leu	Lys	Ser	Tyr	
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Lys	Tyr	Ile	Lys	Glu	Ser	Val	Glu	Asn	Asp	
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Ile	Lys	Phe	Ala	Gln	Glu	Gly	Ile	Ser	Tyr	
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Tyr	Glu	Lys	Val	Leu	Ala	Lys	Tyr	Lys	Asp	
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Asp	Leu	Glu	Ser	Ile	Lys	Lys	Val	Ile	Lys	
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Glu	Glu	Lys	Glu	Lys	Phe	Pro	Ser	Ser	Pro	
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Pro	Thr	Thr	Pro	Pro	Ser	Pro	Ala	Lys	Thr	
			175						180	
Asp	Glu	Gln	Lys	Lys	Glu	Ser	Lys	Phe	Leu	
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Pro	Phe	Leu	Thr	Asn	Ile	Glu	Thr	Leu	Tyr	
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Asn	Asn	Leu	Val	Asn	Lys	Ile	Asp	Asp	Tyr	
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Cys	Asn	Val	Glu	Lys	Asp	Glu	Ala	His	Val	
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Lys	Ile	Thr	Lys	Leu	Ser	Asp	Leu	Lys	Ala	
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Pro	Tyr	Asp	Phe	Glu	Ala	Ile	Lys	Lys	Leu	
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Ile	Asn	Asp	Asp	Thr	Lys	Lys	Asp	Met	Leu	
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Gly	Lys	Leu	Leu	Ser	Thr	Gly	Leu	Val	Gln	
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Ile	Glu	Gly	Lys	Phe	Gln	Asp	Met	Leu	Asn	
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Ile	Ser	Gln	His	Gln	Cys	Val	Lys	Lys	Gln	
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Cys	Pro	Glu	Asn	Ser	Gly	Cys	Phe	Arg	His	
				315						320
Leu	Asp	Glu	Arg	Glu	Glu	Cys	Lys	Cys	Leu	
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Leu	Asn	Tyr	Lys	Gln	Glu	Gly	Asp	Lys	Cys	
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Val	Glu	Asn	Pro	Asn	Pro	Thr	Cys	Asn	Glu	
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Cys	Thr	Glu	Glu	Asp	Ser	Gly	Ser	Ser	Arg	
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Lys	Lys	Ile	Thr	Cys	Glu	Cys	Thr	Lys	Pro	
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<211> 1140

<212> DNA

<213> *Plasmodium falciparum* 3D7 MSP1₄₂

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aaaaacat	ttacattt	tttaaattt	aacgatatct	160
taaattc	cacg	tcttaagaaa	cggaaatatt	200
attagaat	ct	gat	ttaatgc	240
aatgaat	aca	ttt	aaaca	280
cagaaca	aaa	ttt	ttt	320
aaaagaat	ca	ttt	ttt	360
ggtataagtt	attatgaaaa	gg	tttagcg	400
atgat	ttaga	ttt	ttatca	440
atcaatt	aaa	ttt	ttatca	
aaagttatca	aaa	ttt	ttatca	
aagaagaaaa	aaa	ttt	ttatca	

ggagaagttc	ccatcatcac	caccaacaac	acctccgtca	480
ccagcaaaaa	cagacgaaca	aaagaaggaa	agtaagttcc	520
ttccatttt	aacaaacatt	gagaccttat	acaataactt	560
agttaataaa	attgacgatt	acttaattaa	cttaaaggca	600
aagattaacg	attgtaatgt	tgaaaaagat	gaagcacatg	640
ttaaaataac	taaacttagt	gatttaaaag	caattgatga	680
caaaatagat	ctttttaaaa	accctaccga	cttcgaagca	720
attaaaaaat	tgataaatga	tgatacgaaa	aaagatatgc	760
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taatacaata	atatcaaata	taattgaagg	aaaattccaa	840
gatatgttaa	acatttcaca	acaccaatgc	gtaaaaaaaaac	880
aatgtccaga	aaattctgga	tgtttcagac	atttagatga	920
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aaaataatgg	tggatgtgat	gcagatgcc	catgtaccga	1040
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<212> PRT

<213> *Plasmodium falciparum* 3D7 MSP1₄₂

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Gly	Phe	Glu	Asn	Glu	Tyr	Asp	Val	Ile	Tyr	
	25									30
Leu	Lys	Pro	Leu	Ala	Gly	Val	Tyr	Arg	Ser	
	35									40
Leu	Lys	Lys	Gln	Ile	Glu	Lys	Asn	Ile	Phe	
	45									50
Thr	Phe	Asn	Leu	Asn	Leu	Asn	Asp	Ile	Leu	
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Asn	Ser	Arg	Leu	Lys	Lys	Arg	Lys	Tyr	Phe	
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Leu	Asp	Val	Leu	Glu	Ser	Asp	Leu	Met	Gln	
	75									80
Phe	Lys	His	Ile	Ser	Ser	Asn	Glu	Tyr	Ile	
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	95									100
Glu	Gln	Lys	Asn	Thr	Leu	Leu	Lys	Ser	Tyr	
	105									110
Lys	Tyr	Ile	Lys	Glu	Ser	Val	Glu	Asn	Asp	
	115									120
Ile	Lys	Phe	Ala	Gln	Glu	Gly	Ile	Ser	Tyr	

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	135	140
Asp Leu Glu Ser	Ile Lys Lys Val Ile	Lys
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Glu Glu Lys Glu	Lys Phe Pro Ser Ser	Pro
	155	160
Pro Thr Thr Pro	Pro Ser Pro Ala Lys	Thr
	165	170
Asp Glu Gln Lys	Lys Glu Ser Lys Phe	Leu
	175	180
Pro Phe Leu Thr	Asn Ile Glu Thr Leu	Tyr
	185	190
Asn Asn Leu Val	Asn Lys Ile Asp Asp	Tyr
	195	200
Leu Ile Asn Leu	Lys Ala Lys Ile Asn	Asp
	205	210
Cys Asn Val Glu	Lys Asp Glu Ala His	Val
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Lys Ile Thr Lys	Leu Ser Asp Leu Lys	Ala
	225	230
Ile Asp Asp Lys	Ile Asp Leu Phe Lys	Asn
	235	240
Pro Thr Asp Phe	Glu Ala Ile Lys Lys	Leu
	245	250
Ile Asn Asp Asp	Thr Lys Lys Asp Met	Leu
	255	260
Gly Lys Leu Leu	Ser Thr Gly Leu Val	Gln
	265	270
Ile Phe Pro Asn	Thr Ile Ile Ser Lys	Leu
	275	280
Ile Glu Gly Lys	Phe Gln Asp Met Leu	Asn
	285	290
Ile Ser Gln His	Gln Cys Val Lys Lys	Gln
	295	300
Cys Pro Glu Asn	Ser Gly Cys Phe Arg	His
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	315	320
Leu Asn Tyr Lys	Gln Glu Gly Asp Lys	Cys
	325	330
Val Glu Asn Pro	Asn Pro Thr Cys Asn	Glu
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Asn Asn Gly Gly	Cys Asp Ala Asp Ala	Thr
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Cys Thr Glu Glu	Asp Ser Gly Ser Ser	Arg
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Cys Ser Ser		

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<211> 1176

<212> DNA

<213> Artificial sequence

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<223> *E. coli* expressed *P. falciparum* MSP-1₄₂ (3D7)

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ccttagctg	gagtatatag	aagcttaaaa	aaacaaattg	160
aaaaaaacat	ttttacattt	aatttaaatt	tgaacgatat	200
cttaaattca	cgtcttaaga	aacgaaaata	tttcttagat	240
gtattagaat	ctgatttaat	gcaatttaaa	catatatcct	280
caaatgaata	cattattgaa	gattcattta	aattattgaa	320
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ataaaagaat	cagtagaaaa	tgatattaaa	tttgcacagg	400
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caccagcaaa	aacagacgaa	caaaagaagg	aaagtaagtt	560
ccttcattt	ttaacaaaca	ttgagacctt	atacaataac	600
ttagtaata	aaattgacga	ttacttaatt	aacttaaagg	640
caaagattaa	cgattgtat	gttggaaaaag	atgaagcaca	680
tgtaaaata	actaaactta	gtgatttaaa	agcaatttgat	720
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caattaaaaa	attgataaat	gatgatacga	aaaaagatat	800
gcttgcaaa	ttacttagta	caggattagt	tcaaaatttt	840
cctaatacaa	taatatcaa	attaattgaa	ggaaaattcc	880
aagatatgtt	aaacattca	caacaccaat	gcgtaaaaaa	920
acaatgtcca	aaaaattctg	gatgtttcag	acatttagat	960
gaaagagaag	aatgtaaatg	tttattaaat	tacaaacaag	1000
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cggaaaataat	ggtggatgtg	atgcagatgc	cacatgtacc	1080
gaagaagatt	caggtacgag	cagaaagaaa	atcacatgtg	1120
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<211> 391

<212> PRT

<213> Artificial sequence

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Val	Thr	Met	Asp	Asn	Ile	Leu	Ser	Gly	Phe
				25					30
Glu	Asn	Glu	Tyr	Asp	Val	Ile	Tyr	Leu	Lys
				35					40
Pro	Leu	Ala	Gly	Val	Tyr	Arg	Ser	Leu	Lys
				45					50
Lys	Gln	Ile	Glu	Lys	Asn	Ile	Phe	Thr	Phe
				55					60
Asn	Leu	Asn	Leu	Asn	Asp	Ile	Leu	Asn	Ser
				65					70
Arg	Leu	Lys	Lys	Arg	Lys	Tyr	Phe	Leu	Asp
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Val	Leu	Glu	Ser	Asp	Leu	Met	Gln	Phe	Lys
				85					90
His	Ile	Ser	Ser	Asn	Glu	Tyr	Ile	Ile	Glu
				95					100
Asp	Ser	Phe	Lys	Leu	Leu	Asn	Ser	Glu	Gln
				105					110
Lys	Asn	Thr	Leu	Leu	Lys	Ser	Tyr	Lys	Tyr
				115					120
Ile	Lys	Glu	Ser	Val	Glu	Asn	Asp	Ile	Lys
				125					130
Phe	Ala	Gln	Glu	Gly	Ile	Ser	Tyr	Tyr	Glu
				135					140
Lys	Val	Leu	Ala	Lys	Tyr	Lys	Asp	Asp	Leu
				145					150
Glu	Ser	Ile	Lys	Lys	Val	Ile	Lys	Glu	Glu
				155					160
Lys	Glu	Lys	Phe	Pro	Ser	Ser	Pro	Pro	Thr
				165					170
Thr	Pro	Pro	Ser	Pro	Ala	Lys	Thr	Asp	Glu
				175					180
Gln	Lys	Lys	Glu	Ser	Lys	Phe	Leu	Pro	Phe
				185					190
Leu	Thr	Asn	Ile	Glu	Thr	Leu	Tyr	Asn	Asn
				195					200
Leu	Val	Asn	Lys	Ile	Asp	Asp	Tyr	Leu	Ile
				205					210
Asn	Leu	Lys	Ala	Lys	Ile	Asn	Asp	Cys	Asn
				215					220
Val	Glu	Lys	Asp	Glu	Ala	His	Val	Lys	Ile
				225					230
Thr	Lys	Leu	Ser	Asp	Leu	Lys	Ala	Ile	Asp
				235					240
Asp	Lys	Ile	Asp	Leu	Phe	Lys	Asn	Pro	Tyr
				245					250

Asp Phe Glu Ala Ile Lys Lys Leu Ile Asn
255 260
Asp Asp Thr Lys Lys Asp Met Leu Gly Lys
265 270
Leu Leu Ser Thr Gly Leu Val Gln Asn Phe
275 280
Pro Asn Thr Ile Ile Ser Lys Leu Ile Glu
285 290
Gly Lys Phe Gln Asp Met Leu Asn Ile Ser
295 300
Gln His Gln Cys Val Lys Lys Gln Cys Pro
305 310
Glu Asn Ser Gly Cys Phe Arg His Leu Asp
315 320
Glu Arg Glu Glu Cys Lys Cys Leu Leu Asn
325 330
Tyr Lys Gln Glu Gly Asp Lys Cys Val Glu
335 340
Asn Pro Asn Pro Thr Cys Asn Glu Asn Asn
345 350
Gly Gly Cys Asp Ala Asp Ala Thr Cys Thr
355 360
Glu Glu Asp Ser Gly Ser Ser Arg Lys Lys
365 370
Ile Thr Cys Glu Cys Thr Lys Pro Asp Ser
375 380
Tyr Pro Leu Phe Asp Gly Ile Phe Cys Ser
385 390
Ser

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cacaatgg 48

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14/14

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ccggttctgg taccgac 57